

Reprocessing for pnn2 ntuples

Problems identified in the latest (June/July 05) pnn2 ntuple production:

1. ADC energy uncalibrated for target fibers (bug)
2. $RTG = 0$ for $ITGQUAL=1$ (bug)
3. Use of TGRECON for $TPI - TK < 3$ ns produces excess beam background
4. Upper limit of time range of unpacking for target PV is 10 ns, should be 20 ns

TGRECON is target reconstruction developed by Benji primarily to identify kinks and accurately calculate their kinematics in events that failed reconstruction by SWATHCCD. Early studies indicated that TGRECON was capable of increasing the signal acceptance provided by SWATHCCD alone. To exploit this possibility, some events that were successfully reconstructed by SWATHCCD were nonetheless tagged as 'failed' so that they could be reconstructed by TGRECON.

Cases where TGRECON is used

1. SWATHCCD fails (50%)
2. $TPI - TK < 3$ ns
3. Gap between the kaon and pion clusters of > 0.75 cm (40%)
4. Kaon cluster is a composite of 2 large energy clusters at different times.
(7%)
5. Decay vertex is not near the end of the kaon cluster with respect to the B4 hit position. (2%)

For reprocessing, case 2 will only be analyzed by SWATHCCD. Other cases will continue to be analyzed by TGRECON after Benji verifies that selection criteria for cases 3, 4 and 5 are such they would be rejected by pnn2 analysis cuts.

Numbers in parentheses are relative fraction of kink sample after application of PSKINK and DELCO3 cuts.

In addition we will not use TGRECON events for the signal sample, only for kink sample. Signal sample will come from SWATHCCD only.

Fixes and modifications for reprocessing

Who	What	Status
Benji	Eliminate unwanted SWATHCCD ‘forced failures’	in progress
Benji	Include output of Toshio’s fitter in ntuple	in progress
Benji	Fix RTG = 0 for ITGQUAL=1	DONE
Jim	Fix ADC energy for target fibers	in progress
Jim	Fit fibers for $EK < 3$?	TBD
Jim	Exclude fibers classified as π and K from EPIMAXK	in progress
Benji	Remove target info from UTC fit	in progress

“TBD” = to be determined

Are there other known problems to be fixed?

We would like to start reprocessing next Tuesday, 1 Nov 2005.